Remote Terminal Unit

Like MicroCell Controllers, Remote Terminal Units (RTUs) also operate as clients on the WAN, transmitting distribution automation information to the CellMaster for routing to the System Controller.

RTUs on the network manage electric utility distribution feeder elements; such as control voltage regulators; pressure regulators; volume correctors; high-end, solid-state meters; capacitor bank controllers; switch controllers; and reclosers. CellNet provides the communications capabilities for these WAN clients.

Digital radio communications

From the center of each cell, CellMasters communicate with their WAN clients using CellNet proprietary digital radio technology which allows an entire data system to be operated in the spectral equivalent of a single voice channel.

Digital radio offers several system advantages: CellMasters can operate independent of, but in parallel with, each other, providing for maximum data throughput; shorter transmission distances help solve geographic coverage issues inherent in radio-based networks; and the inherent modularity allows for coverage and capacity to be added at any time for fast, easy expansion.

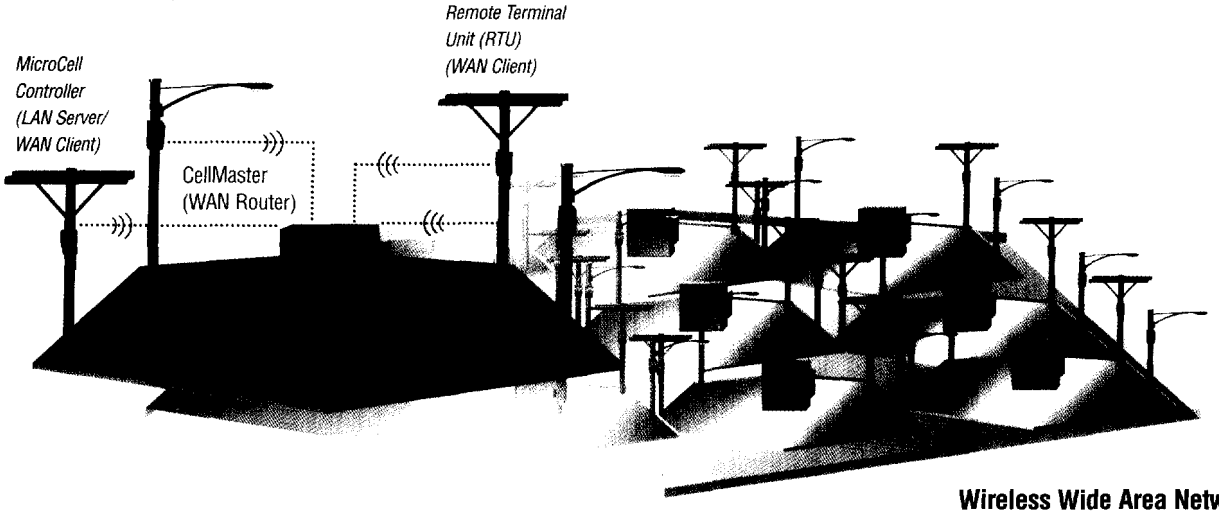
Efficient Spectrum Utilization

CellNet's proprietary narrow band transmission technology enables widespread system deployment while consuming as little RF spectrum resource as possible.

The use of ten "subchannels" allows a complete cell-like system to operate using a single channel of the 928/952 MHz band already allocated by the Federal Communications Commission (FCC) for energy utility applications.

By reusing subchannels in a manner similar to that used by cellular phone systems, CellMasters can be arranged in a pattern which allows the system to grow and cover a large region, and expand capacity incrementally as needed.

Non-adjacent cells can re-use frequencies indefinitely, making it easy to add cells to the network without disrupting service.



Wireless Wide Area Network (WAN)

Microcellular LAN:
smart, local communications

One-quarter-mile radius

The third network in the CellNet system hierarchy is the local area network. The LAN collects data from hundreds of endpoints and forwards the data to a MicroCell Controller at the center of each microcell. Each microcell is typically deployed in a one-quarter-mile radius, and can support up to 700 endpoints.

CellNet Communications Module

Acting as a client on the LAN, the CellNet Communications Module is a "smart" radio transmitter, which collects information on a periodic basis and transmits it via radio to the MicroCell Controller for processing. Smart transmission capabilities provide maximum data integrity.

CellNet Communications Modules can be easily retrofitted for many applications.

A broad range of applications

CellNet offers a full line of Communications Modules for a wide variety of applications:

Electric

Residential, commercial, and industrial electric meters–single-phase, poly-phase, solid state, or electromechanical–from a variety of manufacturers can be easily retrofitted with the Communications Module. Features include built-in power outage notification, reverse rotation detection, magnetic tamper detection, power restoration notification, and redundant transmissions.

Gas and water

Existing residential and light commercial gas and water meters–again, from several manufacturers–can be easily retrofitted. Features include magnetic tamper detection, tilt detection, and battery status indication.

Expanded services

The Communications Module can also serve many value-added applications. Intelligent home terminals can offer two-way messaging, load control, and electronic bill payment capabilities. Vending machines can use CellNet communications to monitor inventory levels and set off door and jammed-coin alarms. Home security systems can provide fire, burglar, panic, and latchkey alarm services, as well as wireless backup for wireline systems.

Smart communications

CellNet's Communications Module collects and monitors both measured and event-based information. In the case of electric meters, this would include collecting meter usage data, reporting outages and power restoration, and triggering alarms upon detection of reverse rotations.

Microcellular radio communications

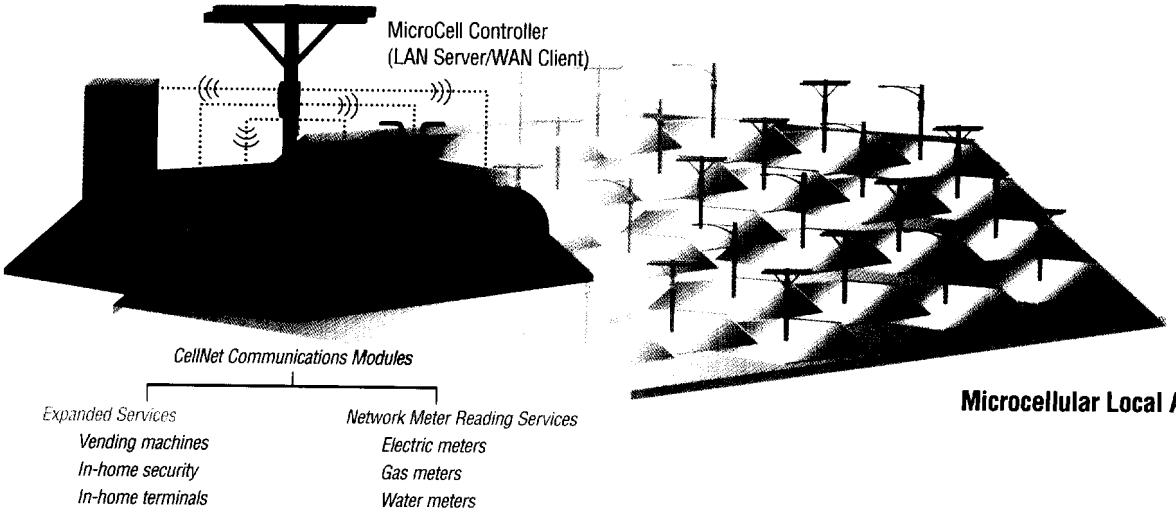
CellNet's wireless LAN communications use a direct sequence spread spectrum radio technology ideal for communicating short bursts of data economically and reliably to and from millions of endpoints. Low power links ensure minimal transmission interference and built-in Circular Redundant Checking (CRC) error-checking protocols and hardware redundancy ensure data is never lost.

Put your future on-line

CellNet's wireless data network provides utilities with powerful, enabling technology that can help them better serve their customers and take advantage of new business opportunities. CellNet's network information services help utilities win–today and tomorrow.

State-of-the-Art Retrofit Center

- **Dedicated 35,000-square-foot facility located in suburban Kansas City**
- **Retrofit capacity of over 100,000 meters per month**
- **Existing utility meters are prepared to become part of the CellNet wireless network**
- **Meters are equipped with CellNet's radio technology, enabling them to communicate over the network**
- **A completely paperless retrofit process allows utilities to automatically update their meter asset database**



Microcellular Local Area Network (LAN)

Gain the *information* advantage

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CELLNET
DATA SYSTEMS

APPENDIX II

CellNet Reply Comments in Competitive Bidding Docket

STAMP & RETURN

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 1 of the	)	WT Docket No. 97-82
Commission's Rules - -	)	
Competitive Bidding Proceeding	)	
	)	

REPLY COMMENTS OF CELLNET DATA SYSTEMS, INC.

CellNet Data Systems, Inc. ("CellNet") hereby replies to the comments filed in response to the Commission's *Order, Memorandum Opinion and Order and Notice of Proposed Rule Making* (the "*NPRM*") in the above-captioned proceeding.[1]

CellNet operates Multiple Address System ("MAS") stations licensed under Part 101 of the Commission's Rules. Currently, CellNet uses its MAS spectrum to create wireless wide area networks which receive real-time usage data from electric, gas, and water utility meters located at the homes and businesses of CellNet's utility customers.[2] Since the Commission's actions in this proceeding will bear directly on the auction of MAS spectrum which the FCC has proposed in WT

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[1] FCC 97-60 (rel. Feb. 28, 1997).

[2] The CellNet MAS networks are used by the company to transmit information received from the meters into databases which are accessible by its customer-utilities. CellNet has successfully deployed extensive MAS networks which already serve hundreds of thousands of utility meters throughout the United States.

Docket No. 97-81, CellNet has a vital interest in the Commission's proposed modifications to its competitive bidding rules.[3]

CellNet strongly supports any modifications to the Commission's competitive bidding rules that account for the special circumstances of small businesses, particularly those such as CellNet which have committed substantial resources to developing innovative technologies that yield new services to the public. Conversely, CellNet opposes any rule modifications that unduly complicate the auctions or that skew the bidding process in favor of large well- financed competitors, or which otherwise are inappropriate for the MAS industry.

Of greatest concern to CellNet is the Commission's proposal to modify its attribution rules for determining small business eligibility. In establishing its competitive bidding rules for small businesses, the Commission determined that:

> The record clearly demonstrates that the primary impediment to participation by designated entities is lack of access to capital. This impediment arises for small businesses from the higher costs they face in raising capital . . . . In this regard, it should be noted that although auctions have many beneficial aspects, they threaten to erect another barrier to participation by small businesses . . . by raising the cost of entry into spectrum-based services.[4]

Clearly, then, the benefits of the "small business" designation were designed to accrue only to those entities whose limited financial resources justify special treatment under the Commission's

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[3] *In the Matter of Amendment of the Commission's Rules Regarding Multiple Address Systems*, WT Docket No. 97-81, FCC 97-58 (rel. Feb. 27, 1997) [the "*MAS NPRM*"].

[4] *Competitive Bidding Fifth Report and Order*, 9 FCC Rcd 5532, 5535 (1994). *See also In the Matter of Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, 11 FCC Rcd 4930, 4965 (1995) ("[I]nstallment payments were intended to promote economic opportunity by ensuring that competitive bidding does not inadvertently favor incumbents with 'deep pockets' over new companies or start-ups.").

competitive bidding rules, and not to a large company that recruits a putative controlling principal who (or which) contributes virtually nothing to the bidder's balance sheet.

To that end, in determining whether an entity meets the revenue and asset criteria of a "small business", the rules employed in several of the service-specific auctions have generally attributed to the "small business" the revenues of all of its owners, the revenues of its affiliates and the revenues of the affiliates of all owners of the business. This approach was designed to assure that very large entities who are excluded from bidding on certain frequencies or otherwise excluded from receiving certain financial incentives did not, through their investments in qualified firms, circumvent the gross revenues/assets caps.

However, "passive investor" revenues and assets could be excluded if the small business entity is organized with a "control group" that meets certain minimum equity and ownership requirements and otherwise exercises both de facto and de jure control. The control group concept and other similar concepts adopted by the Commission for service- specific auctions have been designed to assure "that designated entity and entrepreneur principals retain control of the applicant and own a substantial financial interest in the venture . . . [and to] enable noncontrolling investors outside the control group to provide essential capital to an applicant without their revenues . . . being attributed to the applicant.[5/]

While CellNet applauds the effort to simplify and standardize the definition and supports the adoption of a "controlling principals" test, CellNet believes that some minimum equity requirement should be imposed to assure that "small businesses" are not created out of whole

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[5/] *In the Matter of Implementation of Section 309(j) of the Communications Act - Competitive Bidding, Fifth Memorandum Opinion and Order,* 10 FCC Rcd 403, ¶ 58 (rel. Nov. 23, 1994).

cloth expressly to provide well-funded entities the opportunity to take advantage of financial incentives intended for *bona fide* "small businesses." In such case the bidder is a "small business" in name only, yet as a practical matter enjoys a double benefit of unlimited financial resources *and* favorable treatment as a designated entity under the Commission's Rules.

The problem is particularly acute when entities are formed primarily to bid on licenses as a "small business". Pre-existing entities with a business history or which are publicly traded are not likely to be structured to maximize the investment of a large company at the expense of the controlling principals just to win a license. Absent some minimum equity requirement for newly structured businesses, however, the rules could create substantial incentives to maximize the economic leverage of the large entity primarily to increase the opportunity to win licenses at the government's expense. For example, under the Commission's proposal a limited partnership applicant could be created to qualify as a "small business" if its 1% general partner meets the Commission's gross revenue test for small businesses, even if its 99% limited partner — and the source of most of its equity capital — does not. Yet such economic power eviscerates the "control" otherwise exercised by the qualified entities.

Accordingly, as a matter of fairness to legitimate, established small businesses such as CellNet and to avoid the plague of newly-formed sham applicants which infected the Commission's procedures for issuing broadcast licenses, CellNet requests that the Commission establish a minimum equity requirement for "controlling principal(s)" of a "new" bidder (*i.e.*, one formed principally to participate in the Commission's auctions) claiming "small business"

status.[6] Otherwise, CellNet and other similarly situated bidders will be forced to bid against larger entities who claim small business status but have never operated as such, and who neither need or warrant bidding credits or other special treatment under the Commission's Rules.[7]

CellNet is also quite concerned about the impact of the anti-collusion rules on business negotiations that occur during an auction. To that end, CellNet urges the Commission to give serious consideration to the proposed "safe harbor" treatment of ongoing business discussions, even when overlapping bidders are involved, directly or indirectly. Absent some modifications, CellNet believes that the anti-collusion rules would have a serious chilling effect on the business interests of bidders in the MAS auction.

It is important to remember that MAS spectrum is heavily encumbered and that participants in the MAS auction are likely to consist primarily of existing MAS providers and investors who are already participating in the MAS industry.[8] Unlike much of the recently auctioned spectrum, MAS spectrum may be used for a broad variety of services that do not directly compete with each other for subscribers.[9] CellNet thus anticipates that during the course

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[6] Entities meeting the existing definition of a "pre-existing entity" or a "publicly traded company" would not be subject to the same limitations, as the problems identified above are not likely to be as prevalent with such entities.

[7] The Commission has long been suspicious of ownership structures under which a smaller entity acquires a "controlling" interest in a much larger entity for only a nominal equity investment. *See, e.g., Gloria Bell Byrd*, 7 FCC Rcd 7976, 7980 (Rev. Bd. 1992), and the cases cited therein. CellNet further submits that a minimum equity requirement will be far more efficient than a case-by-case approach that requires CellNet and others to undertake the time-consuming and very expensive process of litigating the issue repeatedly in multiple markets.

[8] *See, e.g., MAS NPRM* at ¶ 8-13.

[9] *Id.* at ¶¶ 42-43.

of the MAS auction there will be many instances where bidders, or investors in bidders, will want to discuss mergers, acquisitions, service agreements, joint ventures or simply a substantial investment, *without* discussing bidding strategies. Indeed, negotiations with sources of capital who have invested in other MAS bidders who provide different services and thus value MAS spectrum on an entirely different basis are quite likely during a lengthy auction process; in such cases, knowledge of the other bidder's valuations will have little meaning to the potential investment target. To avoid a chilling effect, the Commission should establish a "safe harbor" under which bidders may certify that persons involved in any such business-related discussions are not discussing bidding strategy or otherwise divulging bidder information to each other in violation of the anti-collusion rules.[10/]

CellNet also joins with a number of other commenting parties in opposing the Commission's proposal to adopt the "real time" method of competitive bidding. As noted by the American Mobile Telecommunications Association, Inc. ("AMTA") and Nextel Communications, Inc. ("Nextel"), since "real time" bidding could require bidders to constantly monitor the bidding activities on a large number of licenses in every round, it places at a disadvantage small businesses which lack the human and financial resources to devote to staying on-line during an entire concentrated bidding period.[11/] Moreover, "real time" bidding accelerates the bidding process to the point where unexperienced bidders may not have sufficient time to fully evaluate competing bids and formulate their bidding strategies as intelligently as

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[10/] *NPRM* at ¶ 102. *See also* AirTouch Comments at 12-13; AT&T Comments at 6-7; Metrocall Comments at 4-6; PageNet Comments at 14.

[11/] AMTA Comments at 14-15; Nextel Comments at 3-7.

possible.[12/] Given the amount of money that small businesses will have at stake in the Commission's upcoming auctions, CellNet submits that the Commission should do everything within its power to avoid such a result, even at the expense of lengthening the auction process.

In addition, CellNet joins with other commenting parties in opposing the Commission's proposal to require minimum opening bids in lieu of *suggesting* such bids as currently permitted under Section 1.2104(d) of the Rules. As noted by parties such as Airadigm Communications, Inc, *et al.* ("Airadigm"), AirTouch and PageNet, the marketplace is a far better indicator of what opening bids are appropriate in any given auction, and the Commission should not disrupt the process by establishing artificial minimum opening bids that do not correlate with the actual value of spectrum to bidders.[13/] Indeed, to the extent that the minimum opening bids established by the Commission are artificially high, the Commission risks driving bidders out of certain markets altogether (and thereby reducing overall auction revenue) because the markets are too expensive standing alone; this could also affect parties' willingness or ability to bid aggressively on certain market combinations with other markets which bidders would like to acquire, which is the very essence of the multiple round, simultaneous auction process. There is no sound policy rationale for such a result.

Finally, CellNet agrees with other commenting parties that as a matter of equity to incumbents the Commission should modify its rules to provide greater certainty as to when and

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[12/] Nextel Comments at 4. *See also* Comments of AT&T Wireless Services, Inc. at 5; Comments of Automated Credit Exchange at 16.

[13/] Airadigm Comments at 17; AirTouch Comments at 10; PageNet Comments at 11-12; Hughes Comments at 10-11; Nextel Comments at 7.

for how long application freezes will be imposed pending completion of a Commission auction. As noted by AMTA, application freezes have a substantial adverse impact on the ability of all businesses to conduct their operations and provide service to the public.[14/] This is particularly true in this era of "flexible use," in which the Commission essentially places no limitations on how spectrum is used or on how systems using that spectrum may be configured from market to market. While CellNet understands that application freezes may be necessary to ensure orderly conduct of a Commission auction, indefinite application freezes such as that currently imposed in connection with the MAS auction ultimately serve as an unnecessary deterrent to development of new technologies and expansion of service to the public. Hence, CellNet recommends that the Commission either incorporate a maximum period for application freezes into its Rules (*e.g.*, six months) or, if a uniform application freeze for all services is not feasible, adopt a policy of announcing the maximum length of an application freeze in advance of any auction of spectrum already encumbered by existing licensees.[15/]

[14/] AMTA Comments at 18.

[15/] *See* AMTA Comments at 18; Motorola Comments at 8.

WHEREFORE, for the reasons set forth above, CellNet Data Systems, Inc. requests that the Commission modify its competitive bidding rules in accordance with these comments.

Respectfully submitted,

CELLNET DATA SYSTEMS, INC.

By: _____

David L. Perry
Vice President, General Counsel
and Secretary

CERTIFICATE OF SERVICE

I, Elizabeth Hines, hereby certify that on this 16th day of April, 1997, I caused copies of the foregoing Reply Comments of CellNet Data Services, Inc. to be served by hand delivery on the following:

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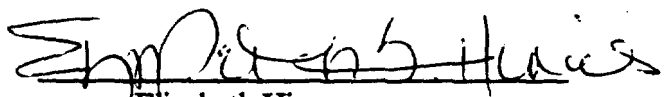

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